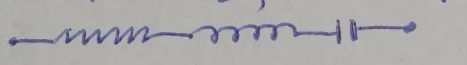
# REVIEW QUESTIONS ON CHAPT. 4

a. The sum of the instantaneous voltage drops, equals the applied voltage. The RMS values are determined by Ohms Law.

b. When it's effective value and phase angle are known.

e. $Z = \sqrt{R^2 + X_L^2}$; $Z = \sqrt{R^2 + X_C^2}$

d.  $Z = \sqrt{R^2 + (X_L - X_C)^2}$

e. 180 degrees out of phase. Er, Ec are 90 degrees out of phase. Ec laging

f. The reactance.

g. Xlgreater than Xc. Xc greater than Xl

h. TAN OF $\theta = \frac{X_L - X_C}{R}$

i. They are in phase or 0 degrees phase angle.

j. Xl = Xc; ec + el $\emptyset$; Phase angle = 0; Tan $\theta$ = 0; Cos $\theta$ = 1; Line current is maximum

k = F = $\frac{1}{2\pi\sqrt{LC}}$

l. The reactive branches currents are 90 degrees out of phase with the resistive branch. Il laging.

m. $Z = \frac{E}{It}$ for both cases.

n. They are 180 degrees out of phase.

o. $Z = \frac{E}{It}$ OR $Z = \frac{X_L \cdot X_C}{X_L + X_C}$

p. $\frac{E}{X_L}$ OR $\frac{E}{X_C}$

q. By the algebraic sum of both branches.

r. Xl greater than Xc, Ic greater than Il The circuit apears capacitive. The current leads the voltage by 90 degrees.

s. Xl = Xc. Line current minimum. Impedance maximum.

t. $P = I^2R$ OR $EI$

u. The graph of power goes through 2 cycles during 1 for current and voltage.

v. The circuit contains reactive components and power is being returned to the source.

w. $P = EI$

x. The capacitor charges and discharges back to the generator in halph of the cycle. The inductor does the same thing, returning the induced voltage back to the generator. ~~$P = EI \cos \theta = I^2R$~~

y. True power is the actual power consumed by the resistance in the circuit. $= EI = \cos \theta = I^2R$

z. The power that the generator must supply regarless of the power returned. $P_{AP} = EI$

aa. PF. is the ratio of true power to apparent power or the percentage of power dissipated. Since this ratio is the cos $\theta$ then the PF. is the cos of $\theta$